



The spatial variability of heat-related mortality in Massachusetts

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Abstract:

This study assesses heat-related mortality in Massachusetts during the months of May through September from 1990 to 2008. Daily maximum apparent temperature was interpolated across space via kriging, and aggregated to 29 municipality groups (MGs), a spatial unit composed of municipalities that was designed to have minimal variation in population. Death certificate data were analyzed to determine the spatial distribution of excess mortality on days that exceeded the 85th, 90th, and 95th percentiles of apparent temperature. We find that the average statewide mortality anomalies were 5.11, 6.26, and 7.26 deaths on days exceeding the 85th, 90th, and 95th percentiles of apparent temperature respectively. A linear stepwise regression showed that percent African American population and percent elderly population (those above the age of 65) were positively associated with an MG's mortality anomaly on days exceeding the 85th percentile of apparent temperature ($p < 0.05$). In spite of the urban heat island effect, our measure of urbanization was not associated with higher rates of heat-related mortality. (C) 2011 Elsevier Ltd. All rights reserved.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Temperature, Other Exposure

Temperature: Extreme Heat

Other Exposure: apparent temperatur

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

United States

Health Impact:

Climate Change and Human Health Literature Portal



specification of health effect or disease related to climate change exposure

Injury, Other Health Impact

Other Health Impact: heat related mortality

Population of Concern: A focus of content

Population of Concern: 

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status, Racial/Ethnic Subgroup

Other Racial/Ethnic Subgroup: African-American

Resource Type: 

format or standard characteristic of resource

Research Article

Timescale: 

time period studied

Time Scale Unspecified